THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CHA-MEI TANG, ANTONIO C. TING
AND THOMAS A. SWYDEN

Appeal No. 98-0250
Application 08/201,963[1]

ON BRIEF

Before HAIRSTON, KRASS, and FLEMING, Administrative Patent Judges.

HAIRSTON, Administrative Patent Judge.

---

[1] Application for patent filed February 25, 1994. According to applicants, the application is a continuation-in-part of Application 08/151,678, filed November 15, 1993.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 9 through 32. In an Amendment[2] After Final (paper number 13), claims 9, 18, 23 and 32 were amended, and claim 15 was canceled. Accordingly, claims 9 through 14 and 16 through 32 remain before us on appeal.

The disclosed invention relates to a cold field emitter system for producing an electron beam.

Claim 23 is illustrative of the claimed invention, and it reads as follows:

23. A cold field emitter system for producing a collimated electron beam, said field emitter comprising:

a substrate;

a field emitter on said substrate;

a gate spaced apart from said emitter, said gate having a gap disposed to permit passage of said beam through said gap;

a lens section spaced apart from said emitter and said gate, said lens section having a gap, said gap in said lens together with said gap in said gate opening to form a conic frustrum;

---

[2] According to the examiner (paper number 14), the amendment had the effect of overcoming the indefiniteness rejection of claims 9 through 15, 18 through 27 and 32.

wherein said emitter responsive to said gate emits said electron beam, said beam propagating to said gate and through gap in said gate, to said lens and through gap in said lens.

The references relied on by the examiner are:

Hughes et al. (Hughes)	3,436,584	Apr. 1, 1969
Kane et al. (Kane)	5,191,217	Mar. 2, 1993
Jones et al. (Jones)	5,475,280	Dec. 12, 1995 (effective filing date Mar. 4, 1992)

Claims 9 through 14 and 16 through 32 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kane in view of Jones and Hughes.

Reference is made to the final rejection, the brief and the answer for the respective positions of the appellants and the examiner.

OPINION

We have carefully considered the entire record before us, and the obviousness rejection of claims 9 through 14, 16 through 22 and 28 through 32 is reversed because these claims are too indefinite for an obviousness determination, and the obviousness rejection of claims 23 through 27 is reversed because these claims are not obvious based upon the teachings

of the applied prior art. As indicated infra, a new ground of rejection of claims 9 through 14, 16 through 22 and 28 through 32 has been entered under the provisions of 37 CFR § 1.196(b).

Turning first to the obviousness rejection of claims 23 through 27, Kane discloses (Figure 1) all of the claimed cold field emitter structure, except for a "conic frustrum"[3] formed by both the gap in the lens electrode and the gap in the gate electrode. Jones discloses the use of a "conic frustrum" in a gate electrode 47 of a cold field emitter, and Hughes discloses the use of a "conic frustrum" in a lens electrode 20. The only teaching of record that uses a "conic frustrum" opening through both the lens electrode and the gate electrode of the same cold field emitter device is appellants' disclosed and claimed invention. Since the examiner is prohibited from using appellants' disclosed and claimed invention in an obviousness rejection, we will reverse the 35 U.S.C. § 103 rejection of claims 23 through 27.

A prior art rejection can not be sustained if the hypothetical person of ordinary skill in the art would have to

[3] Webster's New Collegiate Dictionary lists "frustum," and not "frustrum."

make speculative assumptions concerning the meaning of claim language. See In re Steele, 305 F.2d 859, 862-63, 134 USPQ 292, 295 (CCPA 1962). In claims 9 and 16, a "conic frustrum" is not possible if the top gate diameter is "at least as large" as the bottom gate diameter. A "conic frustrum" can only be created if one diameter is larger than the other diameter. In claim 9, how can a "cavity region" be "selected from the group consisting of"? What are the metes and bounds of such a "cavity region"? In the last line of claim 16, it is not clear what the phrase "and at most" means in light of the confusion concerning the relative diameters of the top and the bottom gate diameters. In claim 16, it is not clear whether the "first" lens electrode and the "at least one lens electrode" are the same lens electrode. If the two phrases are not referring to the same lens electrode, then it appears that the disclosure does not support three lens electrodes. Claims 18, 28 and 32 state that the thickness of the lens in the direction of beamflow is about that of the "thickness" of the gap of the lens. On the other hand, the disclosure (specification, pages 14 and 18) compares the thickness of the lens with the diameter of the gap in the lens. Appellants

compare the thickness of the gap to the diameter of the gap (Brief, page 10), whereas the examiner is of the opinion that the thickness of the gap is the same dimension as the thickness of the lens, and is in the direction of beamflow (Answer, page 7). We are aware of the fact that appellants may be their own lexicographer, but the use of the term "thickness" to describe a diameter has led to confusion as to the location of this "thickness."

REJECTION UNDER 37 CFR § 1.196(b)

In view of the foregoing, we hereby enter the following new ground of rejection:

Claims 9 through 14, 16 through 22 and 28 through 32 are rejected under the second paragraph of 35 U.S.C. § 112 as being indefinite.

DECISION

The decision of the examiner rejecting claims 9 through 14 and 16 through 32 under 35 U.S.C. § 103 is reversed.

This decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b) (amended effective Dec. 1, 1997, by final rule notice, 62 Fed. Reg. 53,131, 53,197 (Oct. 10, 1997), 1203 Off. Gaz. Pat. & Trademark Office 63, 122 (Oct. 21, 1997)).

37 CFR § 1.196(b) provides that "[a] new ground of rejection shall not be considered final for purposes of judicial review."

37 CFR § 1.196(b) also provides that the appellants, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (37 CFR § 1.197(c)) as to the rejected claims:

> (1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner . . . .
>
> (2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record . . . .

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

REVERSED
37 CFR § 1.196(b)

KENNETH W. HAIRSTON Administrative Patent Judge	)	
ERROL A. KRASS Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
MICHAEL R. FLEMING Administrative Patent Judge	)	

Associate Counsel (Patents)
Naval Research Laboratory
Washington, D.C. 20375-5325